PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCES

Application No.	:	10/584,276	Confirmation No.: 4085
Applicant	:	Robert Cudini	
Filed	:	May 21, 2007	
Title	:	MODULAR MEASURING DEVICE	
TC/A.U.	:	4176	
Examiner	:	A.T. Devito	
Docket No.	:	CUDI3001 /FJD	
Customer No.	:	23364	

BRIEF ON APPEAL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA. 22202-3514

Sir:

INTRODUCTORY COMMENTS

Pursuant to the provisions of 37 CFR 41.37, submitted herewith is Applicant/Appellant's Brief on Appeal along with the required fee.

Any additional fees necessary for this appeal may be charged to the undersigned's Deposit Account No. 02-0200.

REAL PARTY IN INTEREST

(37 CFR 41.37(c)(1)(i)

The real party in interest is Applicant/Appellant's assignee, Endress + Hauser Flowtec AG. The assignment was recorded on May 21, 2007 at Reel 019398 and Frame 0280.

RELATED APPEALS AND INTERFERENCES

(37 CFR 41.37(c)(1)(ii)

There are no related appeals or interferences with respect to the invention defined in this application.

STATUS OF CLAIMS

(37 CFR 41.37(c)(1)(iii))

Claims 1 - 15 have been cancelled.

Claims 16 - 31 are pending in this application.

Claims 16 - 31 have been finally rejected.

Claims 16 - 31 are therefore on appeal.

STATUS OF AMENDMENTS

(37 CFR 41.37(c)(1)(iv))

A REQUEST FOR RECONSIDERATION without amendment was filed on August 31, 2009 against the final rejection of July 2, 2009.

An ADVISORY ACTION was issued on September 17, 2009 in which the examiner maintained the final rejection of claims 16 - 31 under 35 USC 103(a) over Dreyer in view of Frick.

A NOTICE OF APPEAL was filed on November 2, 2009.

Prosecution was reopened by the Office Action of March 11, 2010, with claims 16 - 23 rejected under 35 USC 103(a) over Dreyer in view of Olsson.

A RESPONSE was filed on July 12, 2010 by which claim 16 was amended to recite the seal and its arrangement.

An Office Action was issued on September 7, 2010 in which claim 16, as amended, and claims 17 - 23 were finally rejected under 35 USC 103(a) over Dreyer in view of Olsson , and claim 16 further finally rejected under 35 USC 103(a) over Dreyer in view of Olsson and Steinhauser.

A further NOTICE OF APPEAL was filed directly to the final rejection on January 7, 2011.

This BRIEF ON APPEAL is now being filed.

No amendment of the claims was filed after issuance of the Office Action of September 7, 2010.

SUMMARY OF CLAIMED SUBJECT MATTER

(37 CFR 41.37 (c)(1)(v))

(References are to page and line of the specification)

The claimed subject matter relates to a modular measuring device (pg. 1, line 3), in which possible repair or exchange of the measuring device electronics can be performed simply and rapidly (pg. 3, lines 11 and 12). The modular measuring device includes a sensor module, an electronics module, a first connecting element and a second connecting element (pg. 3, lines 17 - 25). The electronics module includes an electronics compartment in which measuring device electronics is arranged (pg. 3, lines 21 - 22). The sensor module and the electronics module are releasably, mechanically connected together, accompanied by the formation of a connecting compartment lying between the the sensor compartment and the electronics compartment (pg. 3, lines 27 - 30). The connecting compartment is sealed fluid-tightly and/or pressure-tightly against the surrounding atmosphere (pg. 3 line 30 to pg. 4, line 2). The two connecting elements are electrically, especially galvanically, connected together, so that the measuring device electronics and sensor are electrically coupled together (pg. 4, lines 3 - 5). The two connecting elements, connected together, are accommodated in the connecting compartment formed between the sensor compartment and the electronics compartment (pg. 4, lines 6 - 8). According to one embodiment of the invention, a seal is also included. The seal is so arranged in the connecting compartment, that it laterally surrounds at least one of the two connecting elements and contacts with an external side, at least one side wall of the connecting compartment (pg. 6, lines 12 - 16).

In Fig. 1, we see the sensor module 5 having a sensor compartment and an electronics module 13 having an electronics compartment. In the sensor compartment is located a physical-to-electric sensor, and in the electronics compartment is located measuring device electronics (Fig. 1 and pg 8, lines 26 -

30). Fig. 3 shows the two connecting elements 19 and 20. The two connecting elements 19 and 20 are electrically, especially galvanically, connected together, so that the measuring device electronics and the sensor are electrically coupled together, with the two mutually connected, connecting elements being accommodated in the connecting compartment 17 formed between the sensor and the electronics compartments (Fig. 3 and pg. 9, lines 15 - 20).

A side wall of one of the connecting elements has an essentially straight groove 41 and a side wall of the connecting compartment has an essentially straight projection 42, with the projection being received in the groove (pg. 10, lines 24 - 30). Alternatively, the groove and projection can be reversed with the connecting elements defining the projection.

Of the pending and finally rejected claims, claim 16 is the only independent claim. Accordingly, only claim 16 with its latest mendment will be mapped.

Claim 16. A modular measuring device, comprising:

a sensor module including a sensor compartment, in which a physical-to-electrical sensor is arranged (pg. 8, lines 26 - 28);

an electronics module including an electronics compartment, in which a measuring device electronics is arranged (pg. lines 28 - 30);

a first connecting element mounted on said electronics module and electrically connected with said measuring device electronics (pg. 9, lines 5 - 7);

a second connecting element mounted on said sensor module and electrically connected with said sensor (pg. 9, lines 7 - 9);

a seal (pg. 12, lines 7 - 9), wherein:

said sensor module and said electronics module are releasably, mechanically connected together, accompanied by the formation of a connecting compartment lying between said sensor compartment and said electronics compartment (pg.9, lines 9 -13);

said two connecting elements are electrically connected together, so that said measuring device electronics and said sensor are electrically coupled together (pg. 9, lines 15 - 18); and

said two connecting elements , connected together, are accommodated in the connecting compartment formed between said sensor compartment and said electronics compartment (pg.9, lines 18 - 20);

said seal is so arranged in said connecting compartment, that it laterally surrounds at least one of said two connecting elements and contacts with an external side at least one side wall of said connecting compartment (pg. 12, lines 10 - 13); and

at least one side wall of at least one of said two connecting elements includes at least one essentially straight groove and at least one side wall of said connecting compartment includes at least one, essentially straight projection corresponding with said groove of said connecting element; and being received by said groove of said connecting element; (pg. 10, lines 24 - 30) and/or

at least one side wall of at least one of said two connecting elements includes at least one essentially straight projection and at least one side wall of said connecting compartment includes an essentially straight groove corresponding with the projection of said connecting element; and being received

by the groove of said connecting compartment (pg. 11, lines 1 - 6).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL
(37 CFR 41.37(c)(1)(vi))

This appeal presents two (2) issues, which relate to the two final rejections of the pending claims.

These issues are as follows:

(1) Claims 16 - 31 are finally rejected under 35 USC 103(a) over Dreyer in view of Olsson; and

(2) Claim 16 is also finally rejected under 35 USC 103(a) over Dreyer in view of Olsson and Steinhauser et al.

ARGUMENTS
(37 CFR 41.37(c)(1)(vii))

(1)

DREYER DOES NOT TEACH A MODULAR DESIGN

In the REQUEST FOR RECONSIDERATION filed August 31, 2009, an enclosure from Wikipedia was submitted. This enclosure is attached hereto. This enclosure defines a "Modular design" as "...an approach that subdivides a system into smaller parts (modules) that can be independently created and then used in different systems to drive multiple functionalities" A modular design is one that includes parts created separately and then combined in a larger assembly.

They are complete and identifiable in their completeness. Nothing is added, nor do they require any structure in order to be usable.

All assemblies have discrete parts, but the assembly does not become modular unless the discrete parts are themselves modular. In this application, the parts 5 and 13 are modular, therefore the assembly is modular.

In the Advisory Action of September 17, 2009, the examiner refers us to col. 2 of Dreyer which does specifically mention the term "modular," but not to the assembly. Col. 2 of Dreyer that "...the sensor.....is modular." Because "[t]he electronics and sensor element are separate components which can be used independent of one another..." If one were to combine the electronics and sensor element of Dreyer alone, a functional assembly would not result, whereas, if one were to combine elements 5 and 13 of the present invention, the result would be a functional assembly. This, then, is the meaning of "modular" according to the present invention.

It nis, therefore, error to conclude that the measuring device of Dreyer "is modular."

THE COMBINATION OF DREYER AND OLSSON DOES NOT PROVIDE THE TEACHING OF THE GROOVE AND PROJECTION BEING CLAIMED

The examiner correctly recognizes that Dreyer does not teach the groove and projection feature of the present invention. He incorrectly concludes, however, that this teaching is found in Olsson, and, just as important, that Olsson's teaching can be combined with Dreyer.

Keying arrangements (Olsson) are know. But exactly how is Olsson's teaching to be combined with Dreyer's assembly. Simply because Olsson

teaches connecting two elements together, is, it is respectfully submitted, no teaching basis for, in some way, modifying Dreyer with Olsson to somehow arrive at the groove and projection feature of the present invention as recited inn claim 16. The same conclusion is reached when considering Steinhauser et al.

There still must be a technical basis for even suggesting a combination of references, and this technical basis must be found in the references. We find no technical basis in the references applied by the examiner.

CONCLUSION

In view of the above, it is respectfully submitted that claims 16 - 31 should be allowed over the references of record and those applied.

Respectfully submitted
BACON & THOMAS, PLLC

Date: March 7, 2011

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APPENDIX OF CLAIMS

(37 CFR 41.37 (c)(1)(viii)

CLAIM STATUS:

Claims 1 - 15 (Cancelled).

16. A modular measuring device, comprising:

a sensor module including a sensor compartment, in which a physical-to-electrical sensor is arranged;

an electronics module, including an electronics compartment, in which a measuring device electronics is arranged;

a first connecting element mounted on said electronics module and electrically connected with said measuring device electronics;

a second connecting element mounted on said sensor module and electrically connected with said sensor; and

a seal, wherein:

said sensor module and said electronics module are releasably, mechanically connected together, accompanied by the formation of a connecting compartment lying between said sensor compartment and said electronics compartment;

said two connecting elements are electrically connected together, so that said measuring device electronics and said sensor are electrically coupled together; and

said two connecting elements, connected together, are accommodated in the connecting compartment formed between said sensor compartment and said electronics compartment;

said seal is so arranged in said connecting compartment, that it laterally surrounds at least one of said connecting elements and contacts with an external side at least one side wall of said connecting compartment; and

at least one side wall of at least one of said two connecting elements includes at least one essentially straight groove and at least one side wall of said connecting compartment includes at least one, essentially straight projection

corresponding with said groove of said connecting element; and being received by said groove of said connecting element; and/or

at least one side wall of at least one of said two connecting elements includes at least one essentially straight projection and at least one side wall of said connecting compartment includes an essentially straight groove corresponding with the projection of said connecting element; and being received by the groove of said connecting compartment.

17. The measuring device as claimed in claim 16, wherein:

at least one of said two connecting elements is movably mounted.

18. The measuring device as claimed in claim 16, wherein:

said two connecting elements are galvanically connected together.

19. The measuring device as claimed in claim 16, wherein:

the connecting compartment is sealed fluid-tightly and/or pressure-tightly, relative to a surrounding atmosphere.

20. The measuring device as claimed in claim 16, wherein:

at least one of said two connecting elements has electrically conductive, plug elements directed essentially in parallel with one another; and

the other of said two connecting elements has electrically conductive, socket elements directed essentially in parallel with one another and corresponding to said plug elements;

said plug elements are inserted into said socket elements and so contact said socket elements, that said sensor and said measuring device electronics are electrically connected together; and

said plug elements and said socket elements are directed essentially in parallel with said at least one groove of said connecting compartment and/or with the at least one projection of said connecting compartment.

21. The measuring device as claimed in claim 20, wherein:

both said plug elements and said socket elements protrude into said connecting compartment.

22. The measuring device as claimed in claim 20, wherein:

at least one of said plug elements and/or at least one of said socket elements is mounted laterally and/or rotatably movably within said connecting element of which it is a part.

23. The measuring device as claimed in claim 18, wherein:

for preventing an erroneous assembly of said sensor module and said electronics module, the at least one projection of said connecting compartment and said connecting element groove corresponding with such are so arranged, that an installed position of said sensor module relative to said electronics module is uniquely determined.

24. The measuring device as claimed in claim 18, wherein:

for preventing an erroneous assembly of said sensor module and said electronics module, the at least one groove of said connecting compartment and said connecting element projection corresponding with such are so arranged, that an installed position of said sensor module relative to said electronics module is uniquely determined.

25. The measuring device as claimed in claim 16, wherein:

said seal is ring-shaped essentially ring-shaped.

26. The measuring device as claimed in claim 25, wherein:

said seal is arranged coaxially, with the surrounded connecting element.

27. The measuring device as claimed in claim 25, wherein:

said seal is arranged within said connecting compartment in the region of a peripheral gap in the side wall of said connecting compartment, and lying between said connecting element and side wall of said connecting compartment.

28. The measuring device as claimed in claim 25, wherein:

said seal has on its outside, contacting the side wall of said connecting compartment, two sealing lips extending essentially in parallel with one another.

29. The measuring device as claimed in claim 27, wherein:

said seal is so arranged in said connecting compartment that the two sealing lips extend essentially in parallel with said gap in the side wall of said connecting compartment.

30. The measuring device as claimed in claim 29, wherein:

said seal is so arranged in said connecting compartment that said gap in the side wall of said connecting compartment extends essentially between the sealing lips of the seal.

31. The measuring device as claimed in claim 26, wherein:

said seal is arranged concentrically with the surrounded connecting element.

EVIDENCE APPENDIX

There is no evidence being relied upon which was submitted pursuant to 37 CFR 1.130, 1.131 or 1.132.

Attached is a copy from Wikipedia of the definition of a Modular Design

Modular design

From Wikipedia, the free encyclopedia

In systems engineering, **modular design** — or "modularity in design" — is an approach that subdivides a system into smaller parts (modules) that can be independently created and then used in different systems to drive multiple functionalities. Besides reduction in cost (due to lesser customization, and less learning time), and flexibility in design, modularity offers other benefits such as augmentation (adding new solution by merely plugging in a new module), and exclusion. Examples of modular systems are cars, computers and high rise buildings. Earlier examples include looms, railroad signaling systems, telephone exchanges, pipe organs and electric power distribution systems. Computers use modularity to overcome changing customer demands and to make the manufacturing process more adaptive to change (see modular programming).[1] Modular design is an attempt to combine the advantages of standardization (high volume normally equals low manufacturing costs) with those of customization.

A simple example of modular design in cars is the fact that, while many cars come as a basic model, paying extra will allow for "snap in" upgrades such as a more powerful engine or seasonal tyres; these do not require any change to other units of the car such as the chassis, steering or exhaust systems.

> "Characterized by: (1) Functional partitioning into discrete scalable, reusable modules consisting of isolated, self-contained functional elements; (2) Rigorous use of well-defined modular interfaces, including object-oriented descriptions of module functionality; (3) Ease of change to achieve technology transparency and, to the extent possible, make use of industry standards for key interfaces."[2]

A downside to modularity (and this depends on the extent of modularity) is that modular systems are not optimized for performance. This is usually due to the cost of putting up interfaces between modules.

Contents

Inter-modular design

Recognizing that excessive inter-module dependencies are an indicator of poor software design, a system should be intended to be loosely coupled to avoid unnecessary dependencies. Thus, inter-modular design should be easy to work with because modules can be easily understood in isolation, and changes or extensions to functionality would be easily localized.

See also

- Modular Function Deployment
- Modular programming
- Separation of concerns

References

1. ^ Baldwin and Clark, 2000
2. ^ "Glossary (Modular Design)". Net-Centric Enterprise Solutions for Interoperability (US Government). http://nesipublic.spawar.navy.mil/part5/releases/1.3.0/WebHelp/glossary/m.htm. Retrieved September 2007.

Further reading

- Erixon, O.G. and Ericsson, A., "*Controlling Design Variants*" USA: Society of Manufacturing Engineers 1999[1]ISBN 0-87263-514-7 [2]
- Clark, K.B. and Baldwin, C.Y., "*Design Rules. Vol. 1: The Power of Modularity*" Cambridge, Massachusetts: MIT Press 2000 ISBN 0262024667
- Baldwin, C.Y., Clark, K.B., "*The Option Value of Modularity in Design*" Harvard Business School, 2002 [3]
- Modularity in Design Formal Modeling & Automated Analysis
- "Modularity: upgrading to the next generation design architecture", an interview

RELATED PROCEEDINGS APPENDIX

There is no related proceeding being relied upon.

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